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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: REIMER, ET AL. Serial No.: 09/220,153 Filed: December 23, 1998 For: PROCESSING APPARATUS HAVING INTEGRATED PUMPING SYSTEM	Group Art Unit: 2812 Examiner: Richard Booth Attorney Docket No. 2981/USA/SMO February 27, 2001 San Francisco, California

DECLARATION UNDER 37 C.F.R. 1.132

I hereby declare that:

1. I am an inventor of the above-identified patent application and an employee of Applied Materials, Inc., the assignee of the present patent application.

2. I have a Doctorate of Engineering Science from the Rheinisch-Westfaelische Technical University of Aachen, Germany, and both a Masters Degree in Mechanical Engineering and a Basic Mechanical Engineering Degree from the Technical University of Braunschweig, Germany. I have worked in the field of semiconductor processing for 10 years. I am currently a director of technology in the SMO Technology Division at Applied Materials.

3. I have read the references cited by the Examiner in the pending application, including U.S. Patent No. 5,575,853 to Arami et al (hereinafter Arami).

4. Arami teaches a pumping system comprising a molecular drag pump adjacent to the chamber and a dry pump distal to the chamber. The molecular drag

pump adjacent to the chamber that is taught by Arami does not exhaust a gas to atmospheric pressure. The molecular drag pump operates by imparting momentum, for example via a rotor, to gas molecules flowing into and through the pump. The momentum imparted by the pump directs gas molecules received through an inlet in the direction of the pump outlet. However, if the pressure of the gas in the pump is too high, the momentum imparted by intermolecular collisions among the gas molecules will dominate, and the pump will not be able to efficiently transfer momentum to the gas molecules. Thus, the molecular drag pump operates only after the chamber to which the molecular drag pump is connected has been evacuated by a dry pump which is distal from the chamber to a sub-atmospheric pressure, typically in the range of from about 10 to about 20 Torr. That is why Arami teaches activating the molecular drag pump only after the dry pump has evacuated the system to a sub-atmospheric pressure of 20 Torr (column 6, lines 19-21). When activated, the molecular drag pump exhausts at the already prevalent sub-atmospheric pressures to the dry pump, and serves to further reduce the pressure below sub-atmospheric levels. Therefore, Arami does not teach a pump that is adjacent to the chamber and that exhausts to atmospheric pressure.

5. Furthermore, it would not have been desirable to place the dry pump taught by Arami adjacent to the chamber. A dry pump such as that taught by Arami is typically very large, occupying a volume of from 0.5 m^3 to 1 m^3, making it difficult to fit in the same room as the chamber. Also, such dry pumps can vibrate excessively during operation, which is harmful to any sensitive chamber equipment that is adjacent to the pump. Furthermore, as such a dry pump is typically excessively noisy, it is undesirable to place the dry pump in the same room in which a human chamber operator may need to work. These and other undesirable features of the prior art pumps taught by Arami have been further elucidated in the Background section of the present application.

As the person signing below, I hereby declare that all statements made herein are of my own knowledge and are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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